approach

OCTOBER 1976 THE NAVAL AVIATION SAFETY REVIEW

The *Ventile* Antiexposure Suit:

IT'S GREAT!

By LCDR Gary Smith, MSC, NAS Norfolk
and LT Bob Brich, VF-43

The CWU-21/P *Ventile* antiexposure suit, shown without *Nomex* flight suit worn over it.

A BRITISH life support specialist on exchange duty with the U.S. Navy recently had the opportunity to visit an F-14 squadron to observe operations. He monitored an ACM brief and followed the crew as they manned their *Tomcats.* The flight was scheduled to take place in a warning area over the water off the coast of Virginia, and since the sea/air temperature was below the CNO magic number of 120, the crew was wearing their CWU-33/P antiexposure wet suit. The Brit's comments about the crew's equipment reflect the frustrations and incredulity felt by many pilots over recent years.

"I was truly amazed. I had really looked forward to coming to America and observing the incredible technology your country has. Imagine my surprise then when I saw the pilot walk out to his fantastically sophisticated and modern F-14 and then have to struggle into the cockpit because his mobility was so restricted by his antiexposure suit! How is it possible for the U.S. to put a man on the moon, yet not be able to develop cold weather water protection that affords protection *and* comfort?"

A fair question. And one that has been asked by pilots ever since they have been required to don protective garments for overwater flight in cold weather. Well, there is another protective device available that is currently used by the USAF and Royal Navy. It provides good protection, mobility, and comfort. Perhaps even more importantly, it is a garment that pilots like, and as a result, reluctance to wear it is greatly diminished.

This antiexposure suit is designated the CWU-21/P, and its most striking difference is that it is a dry suit as opposed to the present CWU-33/P wet suit. The suit is constructed of a special cotton fabric known as *Ventile.* Once this fabric gets wet, the weave meshes together to form a watertight seal. The old suit is essentially a rubber body suit similar to wet suits seen on divers and cold water surfers.

The *Ventile* antiexposure suit has multiple options for selection of undergarments, but the most common choice for mid-temperature locations (35-60°F) is a three-piece combination. Typically, an underlayer of waffle weave underwear is separated from the *Ventile* suit by a spacer assembly. This spacer provides a dead air space insulation function and prevents sticking between the body and the dry suit. The dry suit goes over this and then the normal *Nomex* flight suit is donned for fire protection. Heavy duty undergarments are available to increase protection in extreme cold weather areas.

To fully appreciate what this new suit offers, it is necessary to discuss what pilots' objections have been to the old suit. LCDR Red Best, former FITWING safety officer, first identified the problem in his article "The 'G' in Poopy Suit Is Silent" appearing in the JUL '75 APPROACH. Basically, the problems with the CWU-33/P wet suit are as follows:

The CWU-33/P wet suit.

- The anti-G suit is incompatible with the CWU-33, resulting in tactical aircrews wearing one or the other. This obviously degrades either cold water protection or G tolerance.
- Extreme restriction to mobility is encountered with the wet suit on.
- Major discomfort from heat and friction is generated by the wet suit.
- The suits were never truly custom-fitted to the individual, resulting in poor fit and degraded water protection.

The *Ventile* dry suit is a whole new ball game. Crew comfort and mobility are increased dramatically. Pilots have far less reluctance to wear the garment for extended periods of time, even when not flying. The suit is easy to put on

The wet suit modified by removal of the *Nomex* layer. This garment still restricts mobility and is not compatible with the G-suit.

The *Ventile* suit is compatible with all other aviator equipment – most significantly, the G-suit.

(you can do it yourself) and does not have to be custom-fitted to each individual pilot. Finally, it is completely compatible with the G-suit, and no adjustment has to be made to get other flight gear to fit around the clothing.

The obvious question at this point is how good is its cold water protection? Since the British have used this type of suit for some time, and it has been the Air Force's standard antiexposure garment since 1969, it would be worthwhile to look at their experience. Testing done prior to Air Force acceptance of the garment was very favorable. They proved the garment effective in air temperatures as low as 32°F, adding only a set of heavy underwear to the basic *Ventile* configuration described earlier. Protection down to -40°F was obtained adding other combinations of clothing, but this resulted in a bulkiness that would probably be undesirable for tactical aircrews. Furthermore, the garment gained wide acceptance among Air Force pilots who initially evaluated it. A crew ferried a T-33 from Wright Patterson AFB to Ramstein AFB, Germany, wearing the suit for a total of 28 hours. According to the crew, "The suit was found to be very comfortable, beyond all expectations."

Tests conducted by Naval Air Development Center Warminster (the agency charged with developing and evaluating aircrew survival equipment) have shown that the nonleaking *Ventile* suit actually provides better exposure protection than either the CWU-33 or 33 mod (Fig. 1). Thus, the effectiveness of an intact *Ventile* suit is not really in question.

FITWING ONE at Oceana and VF-43 have been aware of the advantages of *Ventile* suits for some time and have

VF-43 pilots evaluate the *Ventile* suit in 47° waters of the Atlantic.

been pioneers in a program to obtain a better antiexposure suit for Navy tactical aircrews flying out of Virginia Beach. Under the initiative of LCDR Red Best, safety officer, CAPT Myers, FITWING ONE, and LCDR Gary Smith, NAS Norfolk aviation physiologist, the dry suits were procured commercially and their effectiveness evaluated by VF-43. This officially sanctioned but limited evaluation was to be the first step in a grass roots movement to procure *Ventile* suits for Navy crews.

Adversary crews from VF-43 used the *Ventile* garments all last winter and found them comfortable, mobile, and completely compatible with their other equipment. As a second phase to the evaluation, two brave (foolish?) volunteers put on the *Ventile* suits and immersed themselves in the 47° waters of the Atlantic Ocean. Closely monitored by LCDR Smith, the two pilots spent over an hour in the water and were subsequently removed none the worse for wear. In fact, they weren't even that uncomfortable. Although some moisture did penetrate one of the suits, a lot of it was due to water pressure over a period of time. Since a raft was used only briefly, it is likely

The *Ventile* suits provided excellent protection, even though a raft was used only briefly.

LCDR Smith monitors body temperature throughout the evaluation. Oral temperatures were taken due to pilot reluctance to use the more scientific but less acceptable alternative method.

After more than an hour in the water, the pilots are hoisted clear, none the worse for wear.

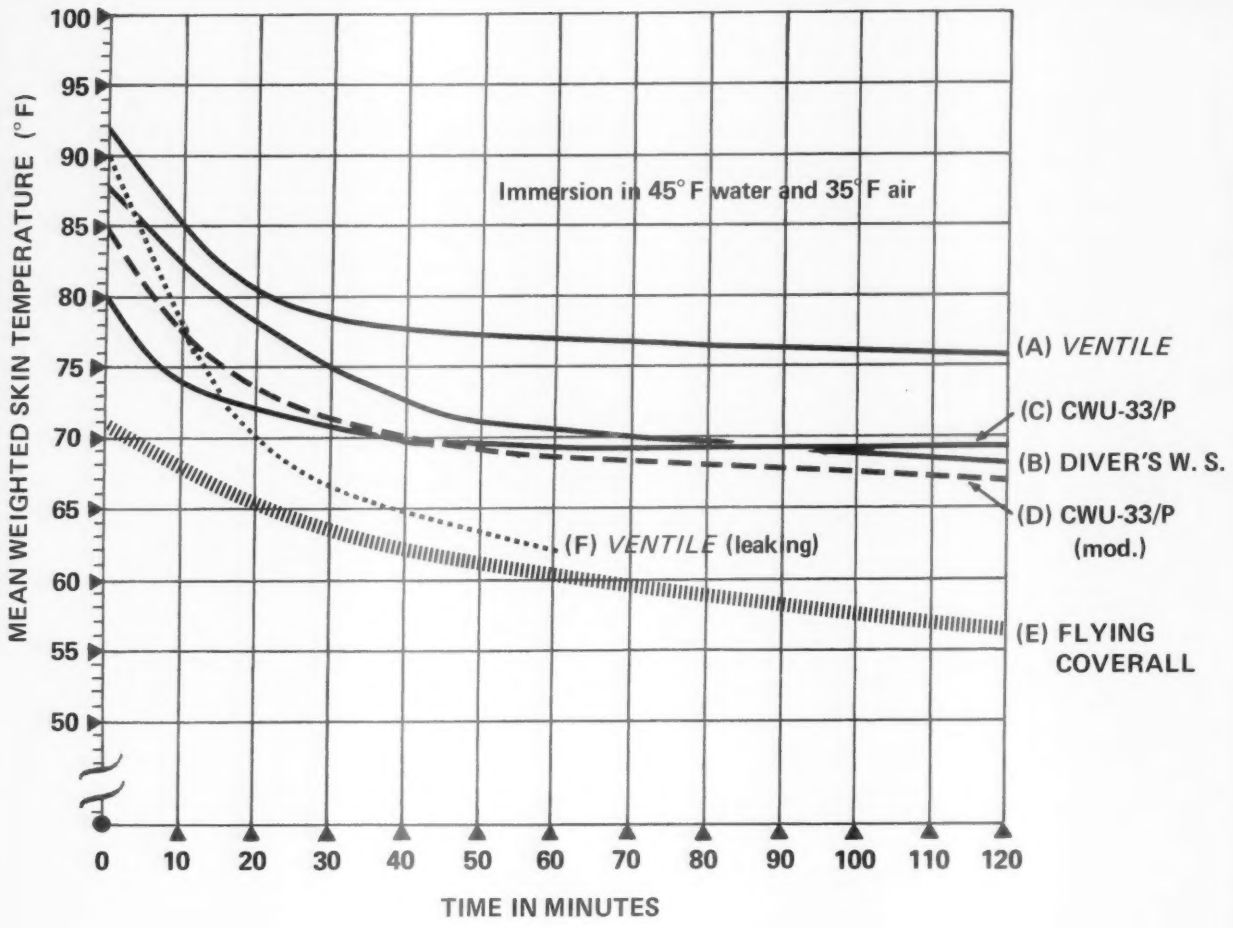

Fig. 1

that even this small amount of leakage would not have occurred if the crew could have stayed in the raft the entire time.

OK, if the suit is so great, why isn't it in Navy use right now? Efforts to make the *Ventile* suit our main antiexposure garment were initially slowed by NADC Warminster objections. Their technical opinion has been that the *Ventile* suit has significant shortcomings, making the CWU-33/P wet suit with modifications a better choice. Their primary objection to the *Ventile* suit is its susceptibility to soiling and damage, both of which degrade protective capabilities (refer to Fig. 1 to show degraded protection of the leaking *Ventile* garment). NADC realizes that the present CWU-33 isn't everything it should be, but they are confident that improvements to the wet suit in the form of the CWU-33 mod (photo, pg. 2) will do much to improve the garment's mobility and lessen its bulk.

Under continued pressure from the Fleet, CNO, AIRLANT, and NAVAIR to procure the *Ventile* suit, NADC agreed to undertake supply of the *Ventile* garments despite their technical objections. Here another problem arose. Initially, 800 of the garments were committed to the Navy from Air Force stocks, but this arrangement was quickly canceled when the Air Force decided that this would not leave them enough garments for their own use. Since the mill that produces *Ventile* material is in England, the supply process is necessarily slow. Therefore, the *Ventile* suit will not be available Navywide for this winter's flying season. As a result, CNO has declared the CWU-33/P as the primary antiexposure garment for the '76/'77 winter season.

Thus it appears that aircrews must again tolerate this less desirable suit for another winter. Nevertheless, the *Ventile* suit procurement is in progress and will become reality if

the Fleet continues to demand it. In our opinion, NADC's objections to the garment are not as significant as they indicate. True, the garment soils easier than a wet suit, and this degrades protection. But the garment can be laundered if handled carefully. Even if *Ventile* is susceptible to tears, pilots can be educated to don the suits carefully and inspect for damage prior to flight. The suits evaluated by VF-43 were used all season and then subjected to the water experiment. None of them sustained damage that made the suits ineffective in the water.

An ideally fitted wet suit might offer better protection in severe weather areas such as the North Atlantic in midwinter, but how often do we operate in these areas? Our primary need is for a garment that we can use right here off the coasts of the U.S. This will be particularly true when the Atlantic Fleet ACM range is established. Also, how many wet suits have you ever seen that were ideally fitted? More often than not, it's a case of grabbing whatever suit is on the rigger's shelf the day you need one. A poorly fitted CWU-33 actually provides less protection than the *Ventile* suit.

The individuals at NADC are a dedicated group of engineers and pilots who sincerely want the best protection for a pilot downed in cold water. In pursuit of this goal, however, it is our belief that they have overemphasized protective qualities at the expense of cockpit comfort and maneuverability by recommending use of the CWU-33/P. Admittedly, any antiexposure suit must result in a compromise between protection and comfort, but the *Ventile* suit is a much better compromise. Mission capability and aircrew acceptance are critically important considerations for any survival gear. These attributes of the *Ventile* suit more than offset their negative considerations.

As you can probably tell by now, we are firm believers in the *Ventile* suit and believe that it is the way to go in antiexposure protection. Probably no antiexposure suit is going to meet with complete aircrew acceptance simply because of the extra bulk and discomfort inherent in any winter protective system when compared to summer flying attire. Nevertheless, to continue to force a garment on aircrews that they violently object to and that has severely degraded G protection is ridiculous. A natural tendency resulting from these feelings is to eliminate wearing the garment whenever possible. It is not uncommon to hear pilots comment that "they would rather die than wear the wet suit." Therefore, we must explore other areas and take a different approach to antiexposure protection. The *Ventile* suit is effective, has aircrew acceptance, and is within the state of the art to produce.

Initiative by FITWING ONE and VF-43 has resulted in the *Ventile* procurement process being started. This proves that the "system" can be responsive to local preferences. The *Ventile* suit procurement is underway, and it *can* be our antiexposure mainstay – if we continue to demand it.

Next month, NADC discusses antiexposure protection systems over the years and gives its views on the relative merits of the different types of exposure suits. – Ed. ◄

Altitude assignments while vectoring on a SID

SEVERAL readers have contacted APPROACH and VF-43 concerning a statement in LT McPherson's article, "Flight Violation," appearing in the JUL '76 APPROACH. The author stated that once taken off a SID by radar vectors, the controller has to give an end point and an altitude, and the altitude restrictions of the SID are no longer applicable. This statement is in contradiction to FLIP General Planning, para 5-14, which states that when an aircraft is taken off a SID at one point with the intention of rejoining the SID at a later point, the altitudes of the SID must be met unless specifically deleted.

To clear up this contradiction, FAA headquarters was queried. They responded with FAA Notice 7110.467 which states specifically what procedures are to be followed when radar vectors are given while flying a SID. The notice vindicates LT McPherson's statement and is quoted in part here:

"When radar vectoring or clearing an aircraft off an assigned SID/SID transition, controllers shall consider the SID cancelled and the flight shall be handled accordingly. However, if there is a need to reinstate the SID or portion thereof, the controller shall *clearly indicate* that portion of the SID routing which still applies and restate applicable altitude restrictions according to Handbook 7110.65-191B." ◄

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The night

Every pilot who has flown on an instrument flight plan has had problems, at one time or another, involving lost communications, navaid outage, change of frequencies, etc. This is a story of a P-3 crew who were airborne the night *everything* went off the line.

The weather wasn't great: 1200 broken, 2500 broken, 4000 overcast with visibility varying from 1 to 3 miles as rain showers moved through the area. A P-3 crew deployed to Cubi Point was "taking advantage" of the IMC weather to log the kind of time you can't buy and to brush up on their instrument proficiency. They had filed a flight plan to Clark AFB where they planned to shoot a variety of instrument approaches.

Six GCAs had been completed and the seventh was well underway. The *Orion* was on a 4-mile final when the reassuring voice of the PAR controller stopped abruptly, and the silence became deafening. In accordance with the lost comm procedures given them earlier, the crew quickly switched from a precision approach to a VORTAC approach and checked their new minimums. Their initial optimism over seeing the HSI course bar dead-centered was shortlived when they observed the OFF flag accompanying the course bar.

Taking advantage of the many nav systems available in the P-3, the crew went to their TACAN in an attempt to complete the approach. It was a good idea except the TACAN wouldn't lock on either. At this point they had run out of approach options and had no choice but to execute a missed approach.

Their missed approach procedure was to climb out the

the world died

020 radial to 15 DME and hold. Ordinarily this would be strictly routine, but how do you hold at a fix when there are no navaids whatsoever?

During the waveoff they passed right through a hole in the clouds over a point where they estimated the field to be. Hoping to acquire the field visually and perhaps make a VFR entry, the crew searched the ground for evidence of the airfield. Nothing. It was absolutely pitch black. Not a light was shining anywhere on the airport.

Correctly assessing the problem as an airfield power outage, the P-3 crew climbed to 4500 feet to ensure terrain clearance above a nearby 3300-foot volcano. Clark AFB has the only navaids in central Luzon that could be received at 4500 feet, and since they were kaput, the crew could do little but attempt to maintain VFR by flying in tight circles in a hole in the clouds. They tried to raise Manila Control but were unable.

The pilots held a conference to discuss the options available to them at this point. They agreed that they had conformed to all established lost comm procedures, and there was no set procedure for the situation they now faced. Since the problem was a power outage at the field, they elected to bide their time, hoping the airfield could regain power shortly, and then handle them.

They didn't have to wait long. Clark came up on emergency power, gave them one vector to depart the restricted area they were in, and promptly went silent again.

Clark was able to transmit in segments only, but eventually the crew pieced a clearance together back to Cubi Point. The pilots and crew agreed it had been an interesting time, cruising around with no navaids, on airways, while the whole world kept silent.

Clark AFB had had a complete, massive power failure; everything had quit at once – all radars, radios, navaids, lights, and electric guitars. Strangely enough, Cubi Point also had a 20-minute outage about the same time.

Recounting the episode in the secure surroundings of the readyroom, the crew advised that if Clark AFB had not been able to give them a clearance, they would have proceeded to Cubi Point, off airways, at a VFR altitude in IMC conditions. Not an ideal solution, but what else could they have done? When you have lost communications, in IMC, and have no clearance, you have to do something! What would *you* have done?

Analyzing the situation in retrospect, there would have been one way to avoid this type of predicament. The crew could originally have filed a roundrobin flight plan to Cubi and then requested a delay at Clark to shoot their approaches. If the above situation were to occur using this procedure, the crew would simply return to Cubi via their filed route at the expiration of the delay time.

All pilots must remember there's no book that has all the answers or procedures laid out for all contingencies. Just like these pros, you keep your wits, take your time, decide on the most logical course of action, and execute it. – Ed. ◄

Student pilots are too often reluctant to assert themselves when flying with their instructors. Occasionally, various circumstances arise that require the student to take charge. Unfortunately, Safety Center files contain abundant examples of fatal accidents where it appears the student failed to assume this responsibility. Fortunately for his instructor, ENS Darrell Williams of VT-23 was not afraid to take control of the situation when his instructor pilot...

BLACKED

THE cross-country training flight in the T-2C *Buckeye* had been routine up to this point. But while cruising at FL390, 280 nm from destination, the aircraft experienced a wing fuel transfer failure. In accordance with NATOPS emergency procedures for this failure, the instructor pilot elected to obtain transfer by securing electrical power. Prior to doing this, the pilots discussed the other effects this action would create: loss of pressurization, ICS, other electrical components, etc. Having briefed the situation, the instructor secured power.

The cabin depressurized as advertised. Shortly after this, unbeknownst to the instructor pilot, his oxygen mask retention fitting came loose and the mask fell to one side. Almost immediately, the instructor lost consciousness.

The student pilot, who was watching the instructor, observed the IP's hand contort with his fingers straight and drawn together. He then observed the instructor's neck flex and saw his body stiffen and move upward. He glimpsed the face under the visor and saw that it was pale and clammy. This was enough to convince the student that his instructor needed help!

He quickly reenergized the electrical system, which repressurized the cockpit, and began an emergency descent. Twenty to thirty seconds later, the IP began to regain consciousness, but he was still in a disoriented and stuporous state. Thinking that the aircraft was in an uncontrolled dive, he made several attempts to take control of the aircraft while mumbling, "Pull out, pull out!"

Ensign Williams knew what he had to do. Through physical force and verbal commands, he maintained control of the aircraft. As the instructor began to recover, he became more fully aware of his condition and no longer attempted to wrest control away from the student. In the meanwhile, the student requested and received vectors to the nearest suitable airfield. The instructor, aware of his degree of incapacitation, allowed the student to fly the aircraft for the remainder of the flight.

Once on deck, emergency crews administered oxygen to the instructor, and he was admitted to a local hospital for overnight observation. The following day, the instructor was for the most part recovered, but he still felt weak and fatigued.

Investigation into this incident revealed that the probable cause of the wing fuel problem was a transfer

valve frozen closed. The instructor's mask had a defective spring in the retention fitting, which resulted in the mask falling off at a most inopportune time. The instructor had had difficulty securing his fittings previously, but was not aware of the broken spring, as the fitting can be difficult to attach even when operating normally. As a result of the poor mask fit, the instructor's useful conscious time was probably already reduced, explaining how he lost consciousness almost immediately when his mask fell off in a nonpressurized cockpit.

The mishap board felt that the pilot used poor judgment by depressurizing the cockpit when he had been having trouble with his oxygen mask. This criticism was tempered, though, since the pilot was unaware that he had a fitting problem other than the normal attachment difficulty.

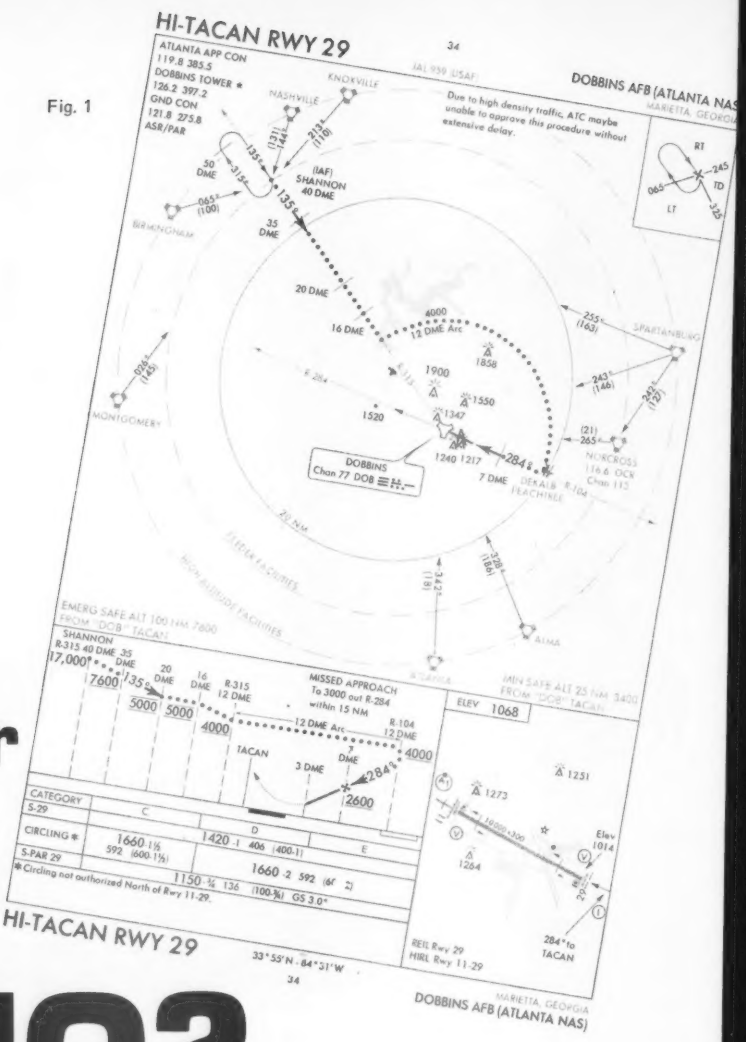
This incident graphically displays the catastrophic consequences of a malfunctioning oxygen system in conjunction with a high altitude/low pressure cockpit environment. T-2 pilots are cautioned about executing the electrical failure procedure to transfer fuel when they have a known or suspected oxygen problem.

The good news of this incident was the outstanding judgment and performance of the student pilot. Despite his limited aeronautical experience, he took charge of the situation and returned the aircraft and instructor pilot safely. For this achievement, ENS Darrell Williams was awarded a letter of commendation. Any pilot in an aircraft, regardless of his rank, experience, or cockpit position, may be called upon in an emergency situation. Would you be as ready as ENS Williams? ◄

OUT AT 390

What's your approach plate IQ?

Fig. 1



By LT Bob Harler
VF-43

AFTER more than 2 years of observing naval aviators complete their annual instrument qualification ordeal in this Oceana based instrument RAG, several facts have become very obvious: (1) 90 percent of the aviators, both Fleet and replacement types, are sierra hotel. (2) 90 percent of the aviators that come through hate "the bag." (The other 10 percent we watch very closely.) (3) An astonishing number of this yearly procession of VA, VF, VRF, VAQ, VC, and miscellaneous pilots and NFOs are surprisingly ignorant about one critical, very basic area of instrument flying: how to read an approach plate!

That pictorial diagram is not worth the space it takes up in your cockpit if you cannot interpret the information presented therein. Add a lost comm or emergency situation in marginal weather, and you (yes, you) may find yourself in a very compromising situation at best. At worst, who knows?

"It can't happen to me," you say. OK, maybe not. But just to check, how about taking this easy, basic, 10-question quiz to see if your understanding of this basic phase of instrument flying is up to speed. The answers are included, along with a scale for grading yourself.

Here's the scenario: Assume you're out for a weekend cross country and are going to RON at NAS Atlanta for some predeployment training. You are filed to "Shannon" (initial approach fix) and plan to shoot the HI-TACAN RWY 29 approach (Fig. 1). A suitable alternate is available with weather of 1000/3 for an ETA ± 1 hour. Try to push aside bad memories of your last instrument exam, and write down your answer to the questions below.

1. If the duty runway is 29, what weather is required to file for the HI-TACAN 29 approach?

2. If the duty is 29, what weather is required to commence the HI-TACAN 29 approach?

3. What should you see on the gages upon arriving at the missed approach point?

4. After you depart "Shannon" flying the HI-TACAN 29 approach, the duty runway is changed to 11. What should you see on your gages upon arriving at your missed approach point?

5. If you must circle to land on Runway 11, will you circle left to land with a right-hand turn in, or circle right with a left-hand turn in?

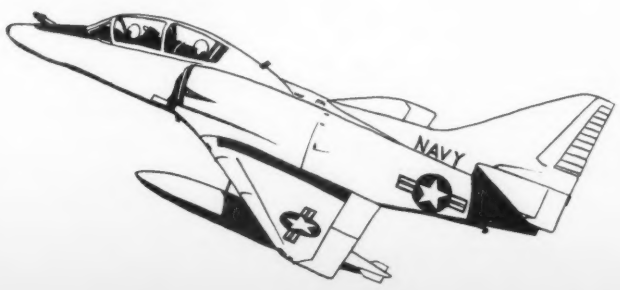
6. What will your radar altimeter read when you arrive at your missed approach point for Runway 29? (Duty is 29.)

7. If the precision approach radar is operating on Runway 11, what is your decision height for that runway?

8. What are the mandatory voice calls during the TACAN approach?

9. What is the highest obstruction within 20 nm of DOB? Is it shown in feet AGL or MSL?

10. On the straight-in to Runway 29, what is the number 406 called? For the circling approach, what is 592 called? Are these the altitudes that will appear in your radar altimeter when you arrive at your missed approach points?



(Answers)

1. 400-foot ceiling (AGL) and 1 statute mile visibility are required to file into NAS Atlanta using the HI-TACAN 29 approach. These numbers come from the parentheses on the S-29 line. If filing to Runway 29 using precision approach radar, the weather would have to be 200 feet and 3/4 miles (single-piloted or 100-3/4 multipiloted) as noted on the S-PAR 29 line, or under "Radar" in the IFR supplement.

2. Again, 400-1 is required to commence the HI-TACAN approach. The number in parentheses is used only twice: filing (including determining your alternate) and commencing.

3. 1420 feet MSL on your *pressure* altimeter and 3 miles on the TACAN DME. The 1420 is taken from the S-29 line and is called minimum descent altitude. The 3 DME can be seen on the profile view of this approach. These are the only two cockpit gages which will tell you when you arrive at your missed approach point.

4. 1660 feet MSL on your pressure altimeter and 3 miles on the TACAN DME. You are NOT looking for the 1½ which appears after the 1660 figure under category C. This is a very common error. The 1½ figure is simply the prevailing visibility as measured from the tower and is explained on page X of your approach platebook. The HI-TACAN RWY 29 procedure shows both straight-in and circling TACAN approaches to be flown to the same missed approach DME – 3 miles. If you break out prior to this 3 DME fix, continue to land straight-in or circle in the appropriate manner to the duty runway.

5. Circle left with a right-hand turn, as per note at the bottom left of the approach plate. If that note was not there, it would have made no difference which direction you circled.

6. Unless you were intimately familiar with the Dobbins area, you would have no way of knowing what will be on your radar altimeter. It

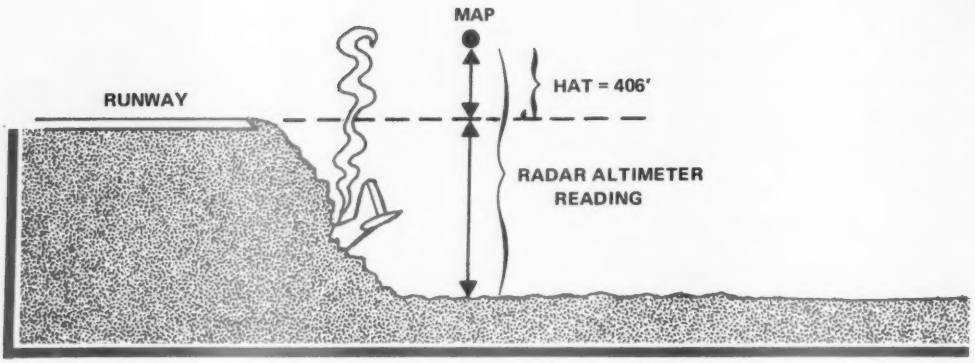


Fig. 2

may read 406 feet (height above touchdown) if the terrain is flat, or it may read just about anything. As can be seen in Fig. 2, going for a 406 reading on the radar altimeter at an airport such as depicted in the drawing would most likely create a smoking hole at the point depicted. The important fact to remember here is that you must rely on your pressure altimeter as the primary altitude reference, and use the radar altimeter as a cross-reference. This same theory applies to whatever type approach you may be shooting.

7. You have no way of knowing the PAR minimums for Runway 11 based on the approach plate alone. The PAR minimums depicted are for Runway 29 and are placed on the approach plate for convenience of the pilot. PAR info may or may not appear in other approach plates. For complete radar information, refer to the IFR supplement. Maybe this was a trick question (it's hard to break old habits), but you simply must never start an approach without knowing your decision height or minimum descent altitude. The controllers don't always call decision height, and when they do, it sometimes won't be until 100-1/4 – too low for single-piloted aircraft.

8. a. "Departing Shannon, leaving 17,000 (non-radar)."

b. "Final approach fix, gear down (non-radar)."

c. "Executing missed approach."

It has been a long time since NAS Atlanta turned into the wind. Therefore, to be correct for the FAA, the word "commencing" should not be used. Don't mix shipboard terminology with shorebased verbiage.

9. You cannot determine what the highest obstruction within 20 miles of Dobbins is with the information given. Note how the 20-mile ring is not centered on the airport. Therefore, not all obstructions within 20 miles of Dobbins are depicted. Therefore it would be wise to use minimum safe altitude for obstruction clearance. Obstruction information is shown in feet MSL.

10. Referring to pages IX and X in the front of the approach platebook, you will discover that 406 is called the HAT (height above touchdown). HAT applies to straight-in approaches only, but may apply to a precision or nonprecision type of approach. HAT refers to your height above the touchdown zone of the runway upon reaching the missed approach point and is given in feet AGL. Again referring to Fig. 2, note that it is the height above the touchdown zone – not height above terrain elevation – at the missed approach point; thus your radar altimeter will not necessarily be accurate if set to read this altitude. The number 592 is called the height above airport and it applies only to circling approaches. It refers to your height above the published aerodrome elevation upon reaching the MAP for a circling approach. It is also expressed in feet AGL. Notice the 53-foot difference between the published airport elevation and the elevation of the touchdown zone.

So, that's the quiz. Easy, wasn't it? If by some quirk of fate you didn't know all the answers, here's a gouge on how you fared:

9-10 correct: A-6 material (author's prejudice showing).

7-8 correct: Time to sign up for that annual instrument refresher course.

5-7 correct: Might think about an interservice transfer.

3-5 correct: Ship's company orders are appropriate.

3-less correct: Are you familiar with the phrase "Surface line, mighty fine"?

In reality, my experience has been that the average fleet pilot would miss 50 percent of these questions, particularly those dealing with radar altimeter readings and missed approach points. If you stop and think about it, this doesn't reflect too favorably on our professionalism as naval aviators. Most of the answers are available in the approach plates, IFR Supplement, or FLIP General Planning Section. If you can't find the answers there, well, remember that annual instrument ground school. The sleep you lose staying awake in class may save you from eternal rest.

Bravo Zulu

1st Lt Eddie A. Daniels, USMC

HOLDING in a popped circuit breaker in order to transfer needed fuel is a rather unusual method of using the fuel system. However, in an emergency – if it works – you can't criticize success. By using this method, 1st Lt Eddie A. Daniels, USMC, of Marine Fighter Attack Squadron 251 was able to transfer approximately 1000 pounds of otherwise unusable internal fuel before the system failed.

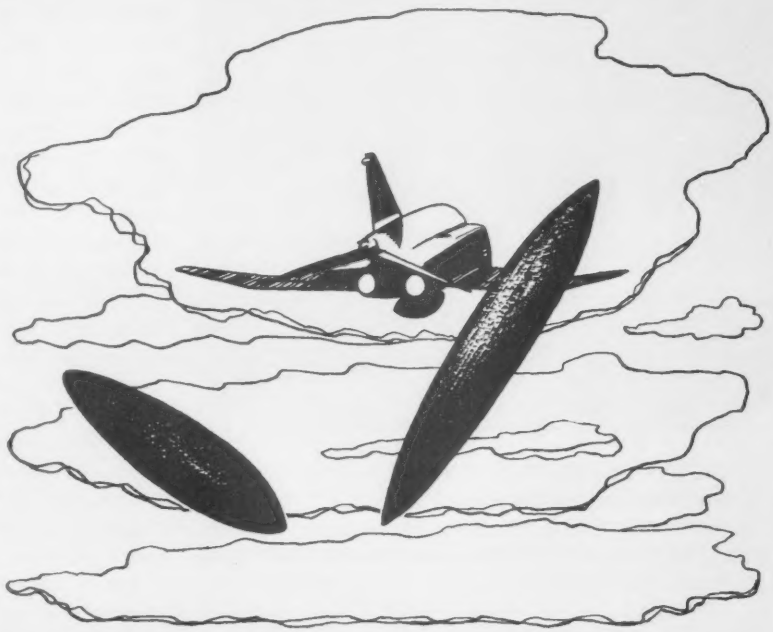
While returning in an F-4J from a deployment at Roosevelt Roads, Lt Daniels discovered that the internal wing transfer system had failed and he was unable to transfer wing fuel. He was approximately 400 miles from NAS Key West. To lessen the drag, he decided to selectively jettison the empty external fuel tanks. The wing tanks jettisoned in a normal manner, but the centerline tank would not. After numerous attempts to jettison it by normal means, he successfully dropped it by the external stores emergency jettison method.

After Lt Daniels had declared an emergency, he immediately flew the F-4 to the bingo profile altitude and elected to divert to Homestead AFB, FL. By his calculations, he would arrive at Homestead with 400 pounds of fuel – no margin for error. Because of this, he decided on holding in the popped circuit breaker, figuring that he would risk a possible electrical fire in preference to the far greater possibility of a flameout due to fuel starvation.

As he approached Homestead, he noticed his utility pressure fluctuating. During his descent, the pressure continued decreasing to 1500 psi and on final approach went to zero. He lowered the landing gear pneumatically. A field arrestment on the duty runway was not possible, as the runway arresting gear had been removed for an airshow. Lt Daniels managed to keep the *Phantom* on the runway by aerodynamic braking and stopped the aircraft with the emergency brake, even though autoacceleration of both engines occurred during rollout. After rollout, he shut down both engines, had the downlocks installed, and was towed back to the transient line.

In retrospect, Lt Daniels' decision to land immediately was very prudent, as evidenced by a maintenance turn the next day. Less than 2 minutes after starting the engines, they flamed out due to fuel exhaustion. Had it not been for obtaining the 1000 pounds of trapped internal fuel, the crew most likely would have been forced to eject and the *Phantom* would have been lost.

Lt Daniels and flight lead, Lt Col Walch, are commended for their expeditious and professional handling of this multiemergency incident. Although NATOPS is the bible and covers the "how" and "why" of most emergencies, it is gratifying to report that Lt Daniels' sound judgment and analysis of a situation not specifically covered by NATOPS was the deciding factor which culminated in an incident report vice an accident report. ◄



Before beginning this article, it needs to be said to all who read the following article that the author is aware of all the possible critiques and rejoinders concerning his thinking on this subject. All he asks is that it be read and then the question asked: "Have I been kidding myself, or in my organization . . .

Is safety really

SAFETY IS PARAMOUNT! How many times has this phrase been used as an opening to a brief by CAG, the skipper, or the safety officer? At least a million times. Do they really mean it, though, or are they just paying lip service? Consider several arguments.

It is a statistical fact that the naval aviation community does not have enough enlisted personnel to man our squadrons at full strength, let alone have enough men who have the requisite training and qualifications. Also, the Navy does not, at the operator's level, appear to have either the funds or material to support flight operations at a satisfactory proficiency level (as defined by Seventh Fleet minimums for proficiency – 23 hours per month per pilot). Aircraft carriers are in much the same bind as squadrons in terms of personnel and their efficiency. Finally, the operating tempo during the infrequent at-sea periods approaches that of wartime operations from YANKEE Station.

Let us take a close look at the problem as it is faced by the typical maintenance control officer and the first tour aviator. The ship has been at sea in transit for nearly 30 days. Total flight time during those 30 days has averaged less than 1 hour per pilot. Activity by crews from the flight deck, hangar deck, catapult and arresting gear has similarly been near zero. Flight operations are scheduled to begin prior to entering port, with excellent weather, calm seas, and a fully operational bingo field. On the surface, flight ops to upgrade the proficiency of all concerned is in order. Yet, when those operations begin, what are the imagined or, in fact, real pressures that are placed on our maintenance control officer and first tour aviator?

The MCO is faced with the dilemma of providing fully up, flyable aircraft without really knowing the condition of his aircraft, since the majority of them have been sitting unflown for 30 days. He knows that every opportunity to fly must be taken to provide the aircrews with every available hour of flight time. His leaders demand performance, and he seeks to comply. He has been told that safety is paramount, yet he is acutely aware that all eyes are on how many aircraft leave the bow. Here is where both the imagined and real pressures come to bear with blinding force.

Below decks in the readyroom, our first tour aviator is preparing for his first launch in WESTPAC. He has been thoroughly briefed on every conceivable aspect of the

paramount?

By LCDR Frank Stauts

mission, from aircraft emergencies to bingo field course rules. He's keyed up for that first look at the famed Republic of the Philippines. Underlying his interest in the mission and his desire to fly is the knowledge of how important it is to both himself and the squadron to make the scheduled launch. He is very much aware of the limited flight time available and the limited opportunities to get it. He wants every trap and flight hour he can get, realizing that one cruise per tour is about all he's going to make.

This first tour aviator is no fool about the subject of aviation safety. However, if forced to make a decision about his launch status, he's been set up to make a decision: operational commitment over safety – the same decision that our MCO is likely to make. The operational imperative, "can-do" spirit and aggressive nature of the naval aviation community, leads us all to make that same (wrong) decision. As a result, we fly carrier-based aircraft under the most demanding conditions faced by any aviators in the world, when we are often fully aware that they are marginally safe before we take off; i.e., one generator inoperative, circuit breakers that won't reset, INS not fully aligned, etc.

Fortunately, in the vast majority of cases, nothing happens. The mission is completed, and the aircraft is downed upon recovery. On other occasions, however, those discrepancies provide the beginning for an AAR scenario. Is this attitude what is meant by the statement "Safety is paramount"? Why do we take the chances we do when we really don't have to? Or why do we say safety is paramount if we really mean to say the operational commitment is paramount? Is our aviation safety record within the Navy a laudable goal, or is it merely window dressing for the public? How much better would the safety record be if we acted in consonance with our stated objectives and guidelines? Lastly, do our commanders really know what we operators are doing? Do they *really* want to know?

Based on five tours in Fleet squadrons and replacement training squadrons, I believe I have enough experience to attempt answering the questions posed. Operational commanders within the Navy are driven by a need to succeed and for good reason. Promotion is dependent on success in conducting operations at sea. And the degree of success in the carrier navy is measured in terms of flight hours flown, sorties completed, and arrested landings made. We operators take the chances we do because we perceive, sometimes feel, and often understand the need to fill in our share of those success measurements. Flying is our game, our profession, and we seldom get into difficulties with our boss when we successfully launch and recover with an unsafe aircraft. Normally, no one but the pilot knows the condition of the aircraft at takeoff; the "go, no-go" decision is ultimately his. The operational commitment weighs heavily on the minds of the pilots entrusted to carry it out. Therefore, a last minute expression by the air wing commander, the skipper, or operations officer of the overused phrase, "Safety is paramount," has little, if any, effect on the decisions made by pilots. The operational imperative has taken safety considerations out of the equation.

What, then, are we to do? Everyone in aviation firmly believes that safety is an important and worthwhile goal. Messages, weekly summaries, and books are devoted to the subject. Why the quandary? Operational commanders from squadron skippers on up must answer that question. If an improving safety record is ever to be achieved on a continuing basis, the aviation community within the Navy must practice what it preaches.

Safety really ought to be paramount. ◄

BREAKAWAY AFTER TANKING *

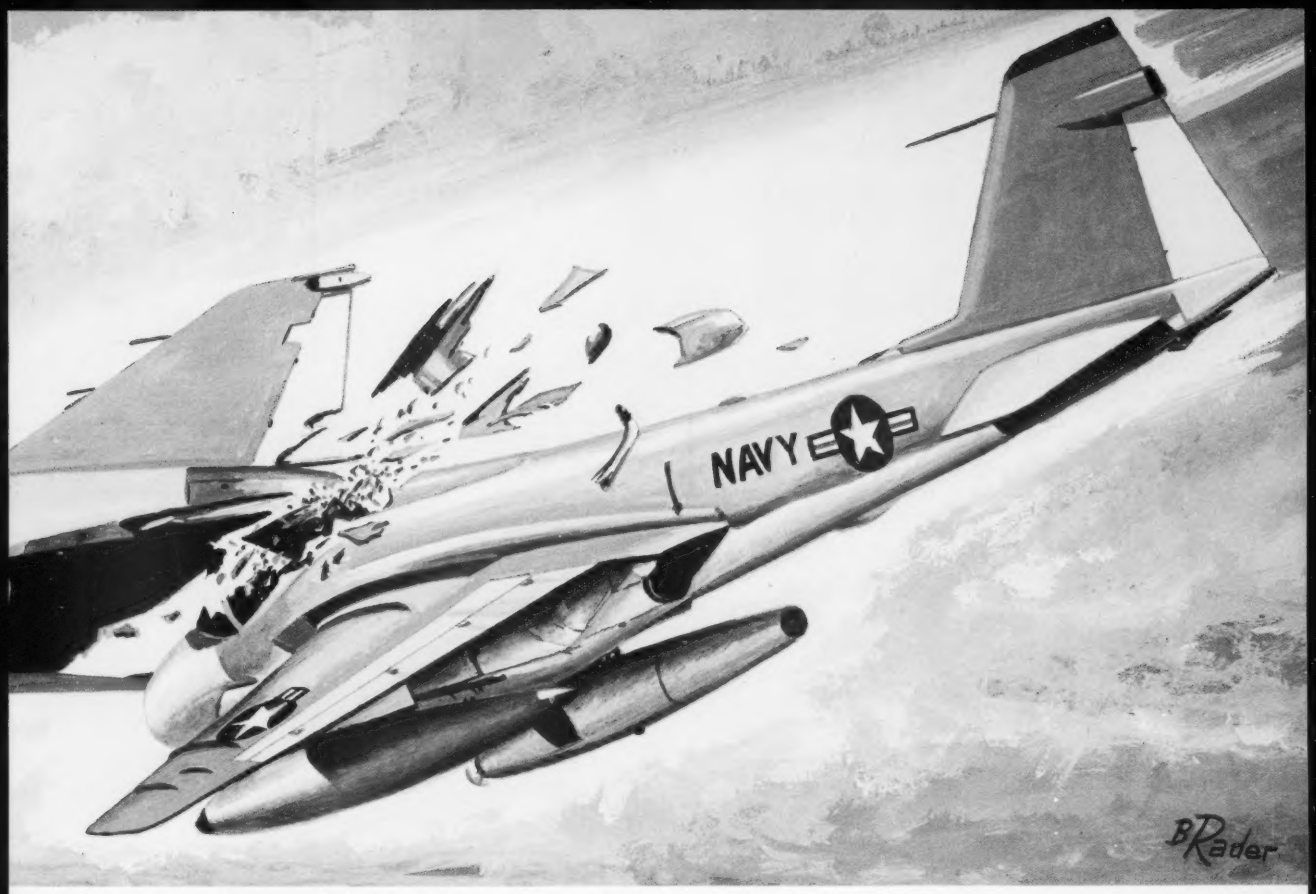
THERE is considerable evidence that the period immediately following inflight refueling, when tanker and receiver are maneuvering to go their separate ways, is a high risk period. During the last few years, there have been at least three major accidents during the process of separation.

In the most recent case, an F-4J and an A-6E tanker collided, resulting in the loss of both aircraft and two crewmen. This mishap involved nonstandard altitude assignments and other unusual situations; however, the crux of the matter is that neither the A-6E crew nor the F-4J crew maintained an adequate lookout following the "kiss off" by the F-4J after tanking. There were mitigating circumstances: the A-6E crew may have been distracted somewhat by another receiver aircraft that was rendezvousing for tanking; or the F-4J crew may have been distracted by an A-7 at their 1 o'clock position, within 1000 feet of their altitude. Whatever the reason, the midair occurred.

After tanking, the F-4J moved up to a parade position along the right side of the A-6E (15-20 feet wingtip clearance). The F-4J pilot gave a "kiss off" signal and received an acknowledgement from the tanker B/N. The F-4 started a gradual climb (5-10 degrees noseup) and a shallow turn to the right. The A-6 pilot prepared to tank another F-4. The F-4J pilot then spotted the A-7 at his 1 o'clock position. Although he did not feel that the A-7 was a midair collision threat, he rolled his wings to keep the A-7 in sight and to pass underneath it. Meanwhile, the F-4 RIO looked inside the cockpit to make a frequency change. When he again looked up, he saw that the two aircraft were about to collide. Because of an oxygen problem, the RIO did not have his mask on. He reacted by placing his mask to his face and shouting a warning to the pilot, "Watch out!" over the ICS. This was followed immediately by impact.

The aft section of the F-4 (wing-root or tail section) collided with the canopy of the A-6E. The A-6E rolled left and entered a dive which ended in impact with the water. The crew was obviously incapacitated since there was no ejection attempt observed. The F-4 crew lost stabilator control after the impact and made a successful ejection.

* Use extreme caution.



A similar accident occurred about 2 years ago between a KA-6D tanker and an F-4. In this case a section of F-4s completed fueling and joined as a section to the starboard. Initial separation was accomplished by the F-4s proceeding straight ahead, while the KA-6D maintained a shallow refueling turn to port. The KA-6D pilot reported that the tanking operation had been completed and gave his TACAN position to Tanker Control, which had requested this information.

Tanker Control thought it was painting the tanker on its radar, but apparently was painting the F-4s, and vectored the KA-6D right toward the fighters. The *Phantom* section had shifted frequencies and did not hear the transmissions. Both F-4 and KA-6D crews saw each other just prior to impact, but too late to avoid a collision between the tanker and one of the F-4s.

Obviously, the error of the controller was an important contributing factor, but the weather was VMC and the aircrews, as always, under these conditions, had a responsibility to maintain a good lookout.

The third accident occurred a number of years ago. It did not match the pattern of the two already discussed, but it did occur during maneuvering following completion of tanking. In this case, following tanking, an F-4 pulled up alongside the A-3 tanker to thank the tanker crew for fuel and to give their side number. The F-4 was tucked in so close that the tanker navigator had to raise his seat to read the side number. Shortly thereafter, the F-4 added MRT to pull away. As it did so, the tail section struck the starboard engine of the A-3, then the radome. Jet exhaust blew out the A-3 canopy, injuring the pilot and navigator and apparently blowing the third crewman out of the aircraft. The A-3 pilot and navigator bailed out and were rescued, but the third crewman and the aircraft were lost.

These accidents are sufficient evidence that all aircrews should pay particular attention during the period when tankers and receivers are separating after refueling. It may be unnecessary to establish a standard breakaway procedure, but it is obvious that there should be a definite breakaway by the receiver and that the aircrews of both aircraft should maintain a good visual lookout during this period, regardless of the method of control being used. ◄

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"STAND BY FOR HIGH WINDS AND

"WHAT time is it?" some sailor asked.

"What difference does it make?" someone else piped up. "We're way the hellandgone out in the Atlantic Ocean, making knots for the US of A."

Another allowed as how he wished they were close enough to fire up the helicopters and go get a beer. "Look, good buddy, by tomorrow we'll be close enough to do just that."

"Oh, yeah!", said another, "we just got a weather report an hour ago and my pal on the bridge said we might have to slow down, change course, or both."

"Well, if that's true, we won't make it on schedule. Would you believe the day after tomorrow, if this tub still floats."

THESE conversations took place after breakfast, 1 February, aboard USS INCHON. The ship was homeward bound with a full load of people, helicopters, and tons of miscellaneous gear needed to support and sustain the troops and machines. The time was 0700 and the weather was 2000 scattered, 7000 broken, 6 miles visibility, winds out of the south at 31 knots.

At that time little did anyone aboard know that the next 24 hours would be worrisome for all, frightening for some, and terrifying for a few. A weather forecast had been received with forecast winds to 45 knots and waves of 8 to 12 feet. The forecast was much milder than the actual weather which was to be encountered.

During the previous 3 days all the helicopters aboard, except one CH-46F and one AH-1J, were spotted on the flight deck to make room on the hangar deck for staged cargo to be offloaded at Morehead City. It was planned to launch the helos on the morning of 2 February. Routine maintenance and check flights were being conducted to ensure readiness for the flyoff.

On the morning of 1 February, rough seas began to develop but not enough to cancel some additional check flights. However, by 1100 the seas and wind picked up and all flights were secured. The weather was 2000 scattered, estimated 25,000 overcast, 7 miles, winds were 190 at 31 knots with gusts to 38 knots.

By 1500 the word was passed for all hands to remain clear of weather decks due to rough seas and high winds. There was no way any of the 11 helicopters could be moved to the hangar deck. The ship was pitching and rolling (10-15 degrees). The weather had worsened to 2000 scattered, 8000 overcast, 5 miles, and the winds were south at 43 knots. The ship was steaming on course 245 degrees.

Meanwhile on the flight deck, men worked as hard and as quickly as possible to secure the helicopters. Extra tiedowns and blade ropes were

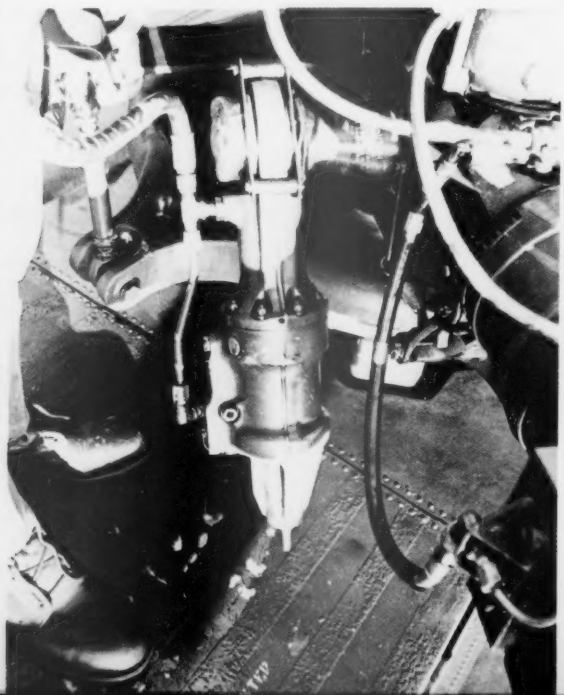
HEAVY SEAS!"

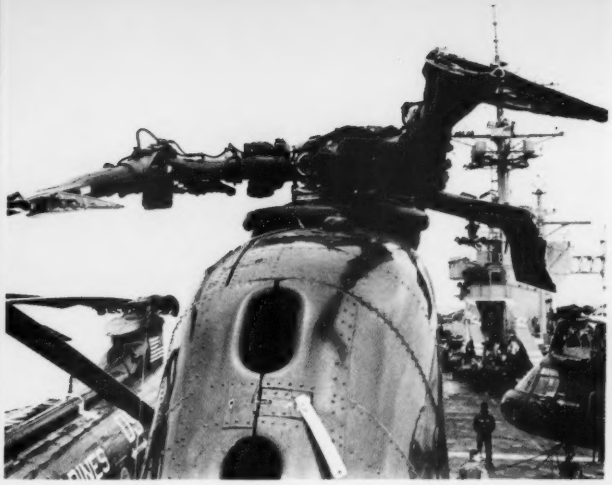
installed. Everything that could be done was done. Then came the hardest part of all – waiting. Although conditions were far from ideal, the worst part was still hours away.

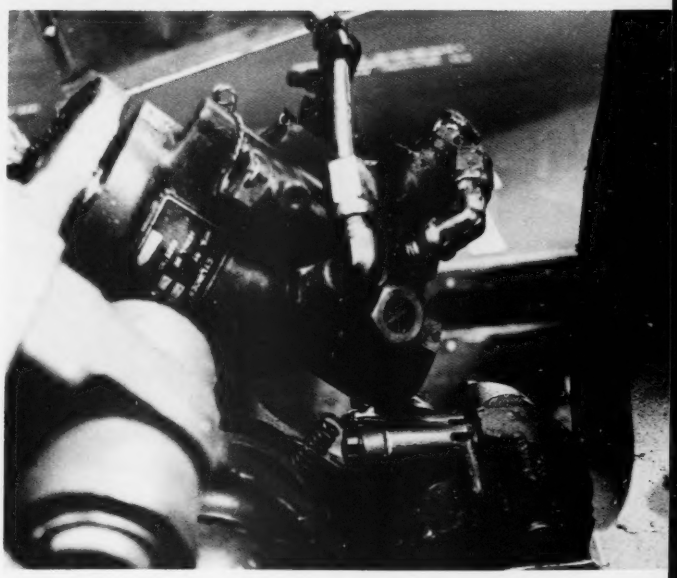
The barometer dropped, seas built, and winds increased. At 2100, the weather was 500 scattered, 2000 overcast, 3 miles, and winds were 170 at 50 knots. Waves broke across the bow, and the high winds carried the spray the entire length of the flight deck and as high as the bridge. The CO decided to reverse course and steam downwind.

During the next 8 hours the storm reached its peak. Sustained winds of 75 knots for over half an hour, with gusts to 85 knots were experienced. The ship rolled constantly between 15 and 25 degrees, and occasionally reached 30 degrees.

Out on the flight deck the elements battered the helicopters. Tiedowns stretched and broke, new chains were



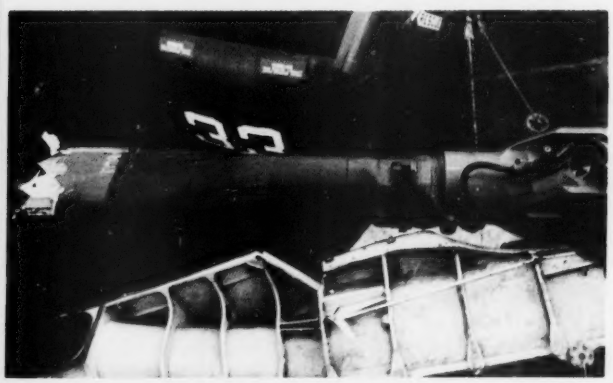




installed, and extra lines were used to secure broken rotor blades. The broken blades were tied down directly to padeyes to prevent them from puncturing the fuselages.

By 0700 winds had decreased to 260 degrees, 40 knots with gusts to 50, but the worst was over and the winds continued to diminish. The seas kept running high, 15 feet, but they too began to slowly subside. Eventually, conditions permitted the CO to resume course for Morehead City, and an inspection of the damage to the helicopters was begun. As evident by the photos, minor damage was incurred by all 11 helicopters – 7 CH-46s and 4 CH-53s. One CH-53, however, received substantial damage.

The heroes of the ship were members of a small team of flight line personnel. They made systematic checks of aircraft security at the risk of their lives all through the long hours. As a result of their efforts, the helos only sustained damage that could be repaired. Without their heroic work, the helos could very easily have been lost over the side. Those who volunteered to risk their lives on the flight deck were 1stLt David A. Knott, Sgts Michael K. Demaline, Billy L. Cagle, James A. Congdon, James R. Frabutt, Clyde D. Seely, and Cpl Robert N. Cave. All have been recommended for medals.



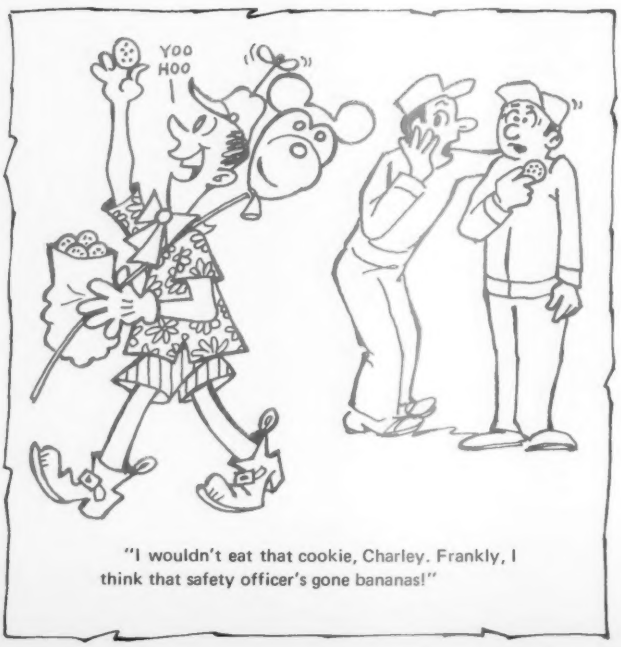
SAFETY: The Bam

By LCDR J. F. Smith
ASO HSL-33

"No, nothing wrong, heh, heh, just routine . . . ALL safety officers must be checked out by a psychiatrist as of this week, ah, today . . . er . . . NOW!"

THE task of the safety officer has never been easy. In constant search of programs to prevent accidents, the safety officer has used such time-honored (hated?) ploys as the safety standdown, AOM spiels, weekly NATOPS quizzes, posters, and the like. Still, despite this ongoing educational process, we continue to have the same mishaps. One way or another, we continue to generate unfavorable relative motion with the ground, ship, other aircraft, trees, water, GSE, buildings, and virtually every other nominal item in *Webster's Unabridged.* How to stop this, you ask? The answer for any aviator, safety officer, or commander is very simple: ANY WAY HE CAN! A little imagination and initiative go a long way to get beyond the usual trite Bravo Sierra, stale, boring campaign for safety. Using the concept of the "Any Way" program, I recently investigated safety management as practiced in the BamButi tribe of the outmost bush. They may have the answer.

Consider, if you will, that the aviation community may well be denying its tribal origins. For all our technological sophistication, it's sometimes difficult to think of a squadron as a tribe. (Admittedly, seeing that same squadron at Happy Hour makes it easier.) However, a trained psychologist that has studied the BamButi tribe would have no difficulty noting the remarkable similarities between tribal and squadron structures – with one striking



"I wouldn't eat that cookie, Charley. Frankly, I think that safety officer's gone bananas!"

"I can appreciate posting a sign over my rack saying, 'Don't take your feet off of the ground without thinking safety,' but nailing my shoes to the floor . . ."

Buti Tribal Way

difference. Specifically, the BamButis live in harmony with their environment, whereas some squadron inmates persist in hassling theirs by running aircraft into the more solid portions of it. How do the BamButis achieve this harmony (perfect accident rate)?

Further research reveals the answer. When the tribe gets together in its *baraza* (meeting place, kind of like our readyroom), the BamButis make strong spiritual medicine they call *dawa* (akin to NATOPS) in their *molimo* ritual (sea story telling at a raucous Happy Hour). All this is conducted by the witch doctor or *shaman.*

So, there it is! The BamButi avoid tribal disintegration and crisis because they have a witch doctor. Maybe we should learn from them.

The safety officer a witch doctor, you say? I know he's been called many things before, but probably not witch doctor. But remember, we are searching for "Any Way" programs. They need not be bound by convention or sanity.

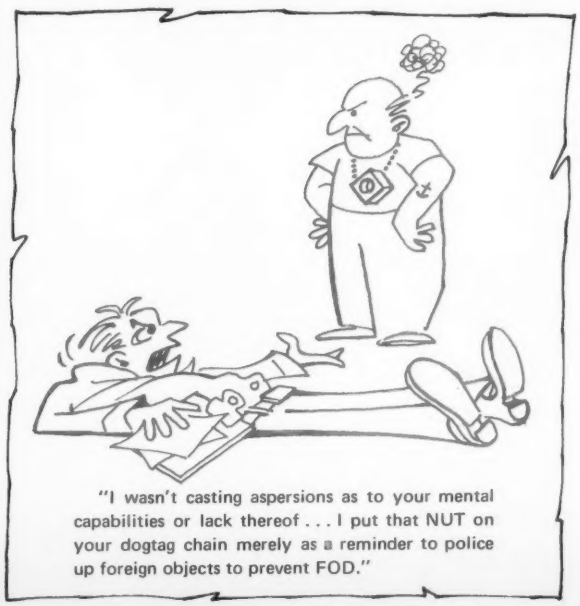
How can we apply BamButi witch doctor principles to our program? I know of one safety officer who feeds chocolate chip cookies (that's right!) to the squadron night flyers. Results: no adverse happenings or accidents. That's proof positive that CC cookies are strong *dawa.* One pilot had a series of hairymouses from faulty electrical inputs in the flight control system. The safety officer provided a pair of (flameproof) red socks and a 1940 New Zealand penny to fly with. Result: no more control problems. Similarly, a rash of chip warning lights was cured by merely having the copilot wear an amulet (chip sensor element on his dog tag).

One safety officer advocates the universal pill (like Dr. Skill in Bunyan's *Pilgrim's Progress)* to ward off assorted crunches and ground accidents.

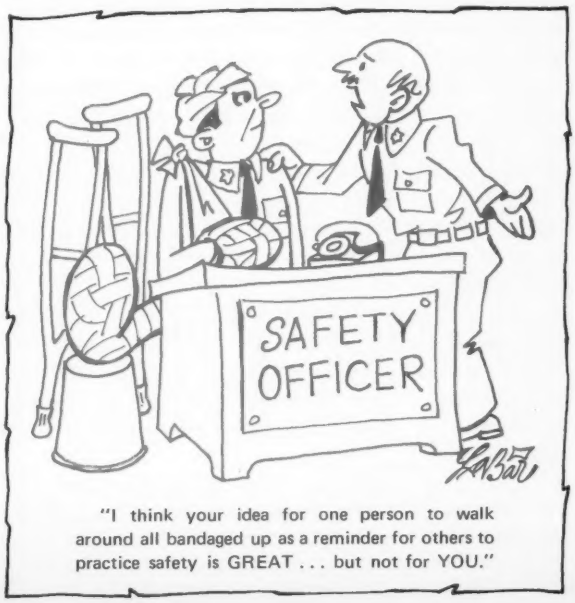
Technically, Dyno-mite/toc-tic candy is merely a placebo. But it worked.

No crunches! (By the way, laxative pills and gum are no-no's. Also, powdered gazelle horn is highly effective, but alas, rarely prescribed by the present generation of flight surgeons.)

Safety officers (and everyone even remotely associated with naval aviation), whatever you're going to do, do it now. The education process is vitally important, and *anything* you can do to make people *think* about safety is worthwhile. A little witch doctoring administered with fitting pomp and ceremony (individual recognition) may be taken seriously by only the BamButi exchange pilot in your squadron. But at least the others will be thinking about it. Who knows! It might work and make your group the safest tribe at the base. ◄



"I wasn't casting aspersions as to your mental capabilities or lack thereof . . . I put that NUT on your dogtag chain merely as a reminder to police up foreign objects to prevent FOD."



"I think your idea for one person to walk around all bandaged up as a reminder for others to practice safety is GREAT . . . but not for YOU."

There's lots of action in the cockpit, especially when there are two or more occupants. Commands are hollered loud enough to be heard over the usual noise level. Hands flash as various switches, systems, and controls are exercised. Body movements are continuous. In this atmosphere, there is no place for anything UNaccountable, UNadvised, UNallowed, UNprofessional, or UNthinking. When a multipiloted aircraft's crew operates in an UNcoordinated fashion, a safe flight is UNlikely.

Cockpit UNs

A COUPLE of single-seat pilots who recently checked out in the US-2B were scheduled for a 4-hour instrument training flight. They were operating from an uncontrolled civilian airport.

They took off about 0800 and returned the first time at 0930 after a chip light illuminated. The primary instrument Runway 36/18 was closed for resurfacing, so their approach was to Runway 36, circling to land on Runway 32. The weather was reported as 600 broken, 5 miles visibility, and winds calm, but actual conditions were 1200 broken and 6 miles.

Repairs were made to the chip detector, and half an hour later, they taxied back out and took off on Runway 32. They resumed their training flight but knew they had to be back on time. Another crew was scheduled for an afternoon flight.

The airport from which the pilots were operating was equipped with VHF unicom and was transmitting runway advisories announcing Runway 14 as the favored runway. Unfortunately, this *Stoof* wasn't VHF-equipped, so they didn't know the opposite runway was preferred to the one they used.

When they returned for final landing, their procedure was identical to their previous approach. On short final to Runway 32, landing checklist completed, they spotted a

light civilian aircraft about to land toward them on Runway 14. A waveoff followed.

The PIC initiated the waveoff without comment to his copilot about his intention to remain in the landing configuration. He meant to set up for a left downwind to 14 and land behind the civilian plane.

Meanwhile, the copilot had picked up the gear, without comment to the pilot. He thought the pilot was going all the way around and land on 32. The pilot stayed close after a clearing turn, reached the 180 position for Runway 14, and turned final. Neither pilot again considered the gear position or the checklist. Predictably, the *Stoof* was landed wheels-up, 1500 feet beyond the approach end of Runway 14.

Both pilots had flown regularly for several months from the airport. Each pilot, though basically a single-engine type, had completed the US-2B training syllabus and was designated a 2P. Both were current. The PIC had flown 17 flights (44 hours) in the last 120 days, and the copilot had flown 13 flights (54 hours) in the same period.

The accident occurred because the pilot failed to lower the gear prior to landing. He also failed to tell the copilot what his intentions were after the missed approach. Even so, the culprit was the copilot who "helped" by raising the gear and then compounded the boo-boo by not telling the pilot what he had done. The fact that he didn't ask the pilot what his intentions were didn't prove too smart either.

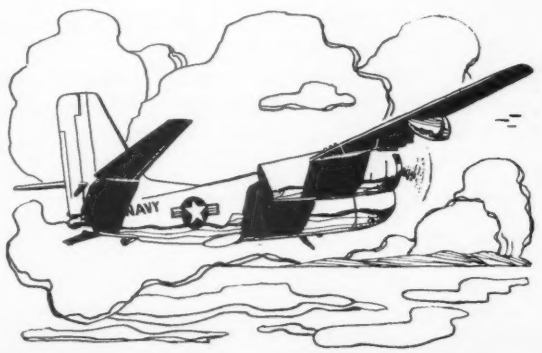
An important underlying point is that the pilot failed to brief his copilot prior to landing or during waveoff, and there was a complete lack of cockpit coordination and teamwork.

Let's briefly consider some of the actions that should go on in multiseat cockpits:

- There should never be any secrets between pilots.
- The PIC is *the* boss and calls the shots. He should never leave any doubt about what he's going to do, nor should there be any doubt on what he wants the copilot to do.
- The copilot never actuates any controls unless told to by the PIC, and after any movements, the copilot tells the PIC what is set. For example, the PIC says, "Set 20 flaps." The copilot, after setting the flaps, says, "Flaps, 20."
- Emergencies, and the appropriate NATOPS procedures to correct them, are discussed together before any action is taken, time permitting.
- Checklists are challenged by the one not at the controls and replied to by the one who is.

It is important for pilots who are single-seat types (used to doing everything for themselves), when checking out in multiseat aircraft, to stop trying to do everything themselves and learn to coordinate cockpit duties with copilots. It's just as important as learning to fly the aircraft itself.

Although this mishap involved an S-2 aircraft, the lesson learned and principles of cockpit coordination apply to all multipiloted aircraft – helos as well as fixed wing. ◄



Anymouse

Do as I Say . . .

HE said, "Men, it is an individual responsibility to see that your flight physicals, NATOPS checks, and instrument cards are current." Those who do not follow his advice are grounded until they meet their obligations.

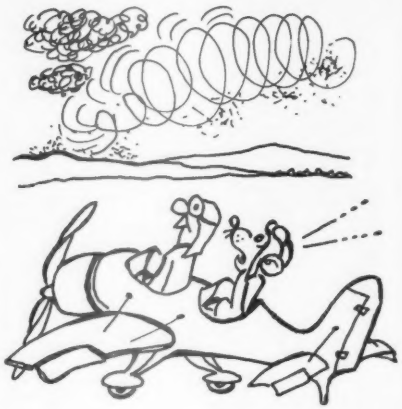
These words from our CO fall on deaf ears because he has worked himself to the point where he no longer has credibility with the squadron pilots. Everyone knows his physical is way overdue and he doesn't hold a valid instrument rating. Our NATOPS officer and ASO have urged him to correct these deficiencies and have been told that he'll take care of it. He hasn't.

The Ops officer has closed his eyes and refuses to recognize the problem, and by his refusal, fails to support NATOPS or safety. Further, he allows the CO to fly instrument evaluation flights and explains this away by saying that the CO is a "special" person.

Without support from the CO and because of his lack of leadership, the young eagles aren't as NATOPS- and safety-conscious as they should be. What is even worse is that the CAG knows what's going on, but I guess his philosophy is "See no evil, hear no evil, speak no evil."

Frustratedmouse

As has been said and demonstrated many times, the most effective form of leadership is example. Despite the most conscientious ASO, a squadron safety program is undermined if the CO doesn't wholeheartedly support safety, or if he gives it only lip service. Safety is *an all-hands function, but safety leadership and guidance have to start from the top.*



Urgent Military Necessity

DURING a recent HurEvac from a training base, the field weather began deteriorating rapidly. Soon it was 300 and ½ (approach minimums 500-1). Pilots waiting departure clearance requested to taxi back to their line to wait for improving weather. The tower advised that the Wing Commander had authorized takeoffs at 300-½. Some pilots still requested to return to the line, but were ordered to take off by a person in the tower, believed to have been the Wing Commander or his representative. Over 60 percent of squadron instructors have less than 1000 hours total pilot time, and in no way are they experienced enough for a special instrument rating.

I recommend the guidelines in OPNAVINST 3710.7 series be given more weight so that a pilot who exercises good judgment will not be *intimidated* into flying in extremely hazardous conditions, especially in a peacetime training command situation. An excuse of operational necessity was given, but to risk two pilots in a 20-year-old aircraft with only one engine,

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT
PREVENT AN ACCIDENT

generator, VOR, and UHF is absurd. If a pilot refuses to launch under the above conditions, he should be guaranteed freedom from intimidation or disciplinary action.

HurEvacmouse

We agree that taking off under the conditions enumerated above entails above average risks; however, in view of the hurricane approaching your base, the Wing Commander was forced to make a command decision based on alternatives of evacuating or facing possible destruction of his aircraft by the hurricane. He decided the evacuation was an operational necessity. Also, there were other fields nearby that had PAR approaches if an immediate recovery was necessary.

It goes without saying that all such flights should be preceded by the **maximum** *in planning and coordination.*

Clear the Area

AS SAR pilot I was directed to man the helicopter to launch. The LPH upon which I was stationed was in the middle of a missilex and was ready to fire the forward battery. All personnel had been ordered to clear the flight deck. I overreacted to the orders to launch and ran from the forward end of the flight deck directly past the exhaust end of the launcher toward my aircraft.

The flight deck PA system ordered me off the deck as I ran to my helicopter, located aft of the island. I had just climbed into the cockpit when the missiles were launched. Had the missiles been fired as I passed behind the launcher, I would have been fried. Overreaction almost singed a gung-ho aviator.

Crinkledmouse

Shooting PARs

I WAS on a local training flight one afternoon shooting multiple PARs at a nearby AFB. The weather was 4000 overcast with a visibility of only 1½ miles, due to snow showers and fog. The P-3 I was flying was performing beautifully.

At 6 miles on final, I was told to expect possible wake turbulence from a departing B-52. At 3 miles, I was cleared for a touch-and-go. When I was told the runway was in sight, I looked up from the gages and, in addition to the runway, I also saw a large cloud of smoke, which was sort of diffusing the lights. I told my copilot (in the left seat) to wave off, and as we leveled off, I saw the B-52 about 3500 feet down the runway on takeoff roll.

I told the final controller I was going around and had the B-52 in sight. He told me to execute an immediate 90-degree left turn and climb to 3000 feet. (I thought that was a good idea.) The B-52 climbed straight out to the south, and I climbed to 3000 feet on a 090 heading without further incident.

I believe this was a simple foulup in coordination between the tower and my PAR controller. I was lucky that the visibility was good enough to see the B-52. If I had missed the approach and waved off, my instructions were to climb straight ahead to 2500, and this may very well have resulted in a midair with the B-52.

PARmouse

Hook Hazard

AN A-7E returned to the line after a final checker discovered an oil leak near the area of the tailhook. On the line, the plane captain gave the "hook down" signal, and the pilot lowered the hook handle. The plane captain continued to show the "hook down" signal and then gave the "hook down" signal again.

The pilot of the A-7E (having no cockpit indication of when the hook is down while on the ground) concluded that the hook was not lowering. He recycled the hook handle in an attempt to get the hook down, while the plane captain continued to show the "hook down" signal.

At the time this was taking place, a maintenanceman was working near the hook well. He was able to clear himself without injury before the hook retracted, but it was close.

This near-accident could have been prevented by the plane captain knowing proper signal usage. Either a "hold" signal or no signal at all should be given after the hook is down. A continuous "hook down" signal is not necessary or desirable, as it leads the pilot to believe the action requested is not taking place.

Hookmouse

Agreed!

Malfunctions by the batch

THE HAC and crew of an SH-3D launched from a CV on an ASW mission. After some time on station, they broke a dip and climbed to 200 feet when their tail rotor takeoff caution light illuminated. Both speed selectors were advanced and the caution light went out.

The HAC informed his section leader, kept climbing, and headed for Homeplate. Enroute, the following malfunctions occurred:

- The copilot's VGI failed.
- The RAWS began continuous beeping at 500 feet.
- Crossfeeding was terminated and the No. 1 T/R caution light illuminated when the boost pumps were shut off.
- No. 1 generator and battery were cycled without results.
- The ARC-94 was rechannelized and the helo jumped each time a channel was changed and when the radio was secured.
- The landing gear was lowered and the ASE failed.
- The ARC-51 failed but the copilot's VGI returned.
- The whole time the *Sea King* was headed for the deck the boost pumps flickered on and off.

The helicopter landed safely aboard ENTERPRISE after a 20-minute flight. An investigation of the No. 1 generator disclosed a broken jump wire from lead T-5 to T-4. It was fixed. Also as a precaution the reverse current relay was changed. There have been no further problems with this bird.

Fortunately, this incident occurred during daylight. Such a circus of flashing lights, cycling equipment, and loss of flight instruments, the ASE, and radios during night, IFR conditions could have precipitated a disaster. ◄

A-7 Departure Training

By LT C. T. Bauer
VA-174

AN article in the JAN '76 APPROACH entitled "Out-of-Control Aircraft Losses" indicated that a departure training program for A-7 Readiness Training Squadrons had been recommended and was currently being reviewed for possible *future* implementation.

In fact, VA-174 (the east coast Readiness Training Squadron) initiated such a program in February 1975 and has now reached the 1-year anniversary of intentional departure training. Through January 1976, the RAG had trained 104 RPs (replacement pilots), IPs (instructor pilots), and Fleet pilots and logged 333 intentional departures without any re-departures or spins.

Departure training has been so successful that COMLATWING ONE has issued a directive specifying that intentional departure training be conducted as a prerequisite to flying DCM (Defensive Combat Maneuvering) flights, both in the RTS and in the Fleet A-7 squadrons during their training cycles.

The A-7 has had a history of departure-related accidents since its inception. The aircraft has poor stall warning characteristics and is very prone to depart from controlled flight. However, the aircraft also recovers very nicely when controls are released; the aircraft is decidedly anti-spin.

It was felt for many years that intentional departures should be performed under controlled conditions so that the pilot could actually witness the entire evolution leading up to the departure and hence avoid such a maneuver in training or actual ACM. Another benefit would be derived from the fact that a pilot's *first* departure would not be *un*intentional, so any future unintentional departures would be less traumatic – he would have already been there.

After approximately 5 years of request for such training, approval was finally given for VA-174 to begin training replacement pilots in February 1975.

The departure syllabus is an integral part of the DCM phase of training. This is the optimum time for such training for several reasons:

- RP has 50 hours minimum in type.
- RP has just completed 2 weeks of weapons delivery and is comfortable in the aircraft.
- Training occurs in the most departure-prone phase, i.e., DCM.

The RP performs three intentional departures: one unaccelerated, two accelerated. He enters from 25,000-30,000 feet, which allows plenty of room for error. A qualified IP is chasing every maneuver. An extensive pre-departure checklist is performed prior to entry to preclude inadvertent pro-spin inputs.

One of the most important things to come out of the program has been the use of a buzzword – *AHAA*.

AHAA is an acronym for the departure procedures:

AFCS disengage
Hands and feet off controls
Angle-of-attack – monitor
Airspeed – monitor

This buzzword is virtually ingrained in all east coast A-7 pilots, and departure procedures have become automatic.

From a *safety* standpoint, the departure program must be considered one of the most important innovations to come down the road in a long time. Not only has combat readiness been improved greatly, but no departure/spin-related accidents have occurred in over 1½ years in the east coast A-7 community. This enviable record has occurred in conjunction with an expanded ACM/DCM syllabus for both Fleet squadrons and the Readiness Training Squadron. Let us strive for more programs that increase combat readiness *and* improve our safety records at the same time.

The VA-174 syllabus that was initiated in February 1975 was a trial program. CNO approval of departure training in the A-7 Readiness Training Squadron was granted in July 1975. The success that VA-174 had with their syllabus greatly contributed to demonstrating the safety and value of the intentional departure as a training maneuver. The last A-7 departure accident occurred in February 1975. – Ed. ◄

Letters

Commonsense Approach to Fitness

NAS Oceana, VA – I sincerely enjoyed LT Thompson's lighthearted approach to physical training ("A Retarded Approach to Physical Fitness," APR '76 APPROACH). His approach has done far more to encourage me to don jockstrap than all of the other formal, medical articles that have been previously published in the various journals. Cardiovascular fitness, aerobics, and triglyceride levels are terms that don't do much for me, but beer I can relate to! As far as I'm concerned, LT Thompson's corollary No. 1 (the more you run, the more you can eat and drink) puts physical fitness in terms I can understand.

LCDR Terry Ede
VF-43

Sierra Hotel Fighter Words

NAS Norfolk, VA – In reference to your MISSILEX article ("MISSILEX: Flailex or Safex?", JUL '76 APPROACH), could LT Burgess tell me whether the use of all of those neat code words constitutes a "beadwindow," or would an appropriate falcon code suffice?

Golly, the only place I've ever seen those Sierra Hotel fighter words has been in numerous classified LOIs, FXPs, and in some obscure tactical pub that blackshoes love to use.

LT G. D. Caster
VC-6 OPS/Safety

P.S. Nice bootlaces on the left pilot (pg. 24)!

How Not To!

NAS Norfolk, VA – In your MAY '76 issue, pg. 14, a photograph is used in connection with an article, "CV Safety Problems: AMERICA's Approach," which seems to be an example of "how not to do it." I point out the fire extinguisher standing alone, ready to be knocked over and take on a blurred appearance as it becomes airborne. Also, it seems strange that if the hot-suit men in the picture are expecting a flight evolution to begin, why are there two onlookers with no protective devices? Even if you are short of photos, this one should be placed in the circular file.

LT M. G. Thomas
ASO HSL-32

● Sometimes it seems that we spend half of our letters page explaining and/or apologizing for photographs that beady-eyed readers have probed for safety violations. Hard as it probably is for some readers to believe, we do screen pictures very carefully and reject many photos for every one that is published. Our biggest problem is getting a ready supply of technically accurate, artistically pleasing, safety-correct, and up-to-date photographs. Thus, we will take this opportunity to appeal to all units to send photographs meeting these requirements. We would appreciate it. Besides, think of all the time it will save future readers from writing to us about discrepancies!

Not So Fast, VP-94

NS Roosevelt Roads, PR – I would like to qualify the letter in JUN '76 APPROACH concerning VP-94's "Request for P-2

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

Material." VC-8 at NS Roosevelt Roads currently operates several types of P-2 aircraft; specifically, the DP-2E, the EP-2H, and NP-2H. In late 1976, we expect to begin receiving the first of three DP-2H (drone launch-configured) aircraft to replace the aging DP-2Es. It is expected that VC-8 will be operating P-2s into the early 1980's. Please send us some bumper stickers.

CDR P. H. Molenda
CO, VC-8

P.S. VP-94, when you finish compiling your P-2 history, send it to VC-8 and we will continue it at least for 7 more years.

Save the Drones!

NAS Norfolk, VA – In his JUL '76 article, "MISSILEX: Flailex or Safex?", LT Burgess closed with ". . . may all your Fox Two's be Bula-Bulas." While I admire his obvious desire to kill the "enemy," I feel that a bit of perspective should be added to his statement. The ultimate goal of a Missilex is *not* to destroy the drone (no warheads are used), but to exercise and evaluate the aircraft and weapons system. If the fighter crews make their calls *on time,* the training requirements of the Missilex can be met *and* the drone driver can turn the drone in time to prevent its destruction. More drones saved – more presentations, more training, better readiness. Makes sense.

CDR F. R. Lickfold III
Commanding Officer
VC-6

SIDs Are Confusing

NAS North Island – SIDs, Dear Editor can be confusing, as LT McPherson pointed out in his article, "Flight Violation!" (JUL '76 APPROACH). But perhaps his use of the term "level off altitude" is also confusing because "level off altitude" is *not* used in the SID.

What is used in SIDs are "crossing" altitudes, and there are more of these specified in the depicted Amador Three Departure than the 5000 feet restriction cited in the article. Both the Runway 32 and Runway 14 takeoff procedures *require* that other crossing altitude restrictions be met *prior* to reaching Sunol intersection.

A suitable summary might be that the *entire* SID procedure pertains when a SID is issued as part of a clearance unless the clearance specifically modifies the SID. As LT McPherson points out, ATC procedures have become increasingly complex. It's a wonder there aren't more incidents similar to "Flight Violation" considering the sometimes conflicting demands imposed by ATC procedures, primary mission requirements, time devoted to administrative duties, and reduced flying hours.

D. F. Mitchell
Nuclear Weapons
Training Group Pacific

• You are correct. The reason 5000 feet was chosen in the article was because this was the crossing altitude restriction that was not met. As you pointed out, the others are just as applicable.

An interesting and related matter developed out of this article. It concerned SID altitude restrictions when given radar vectors during a SID. FLIP General Planning and a statement in the article were in contradiction, so FAA headquarters was queried to clarify the situation. LT McPherson proved to be correct. A complete explanation of the matter was contained on pg. 5.

Re "Let's Hear It for Landing Lights!"

Royal NAS Yeovilton, Ilchester, Somerset – I've just perused the APR '76 issue of APPROACH, and I noticed in subject Air Breaks what I thought was an insignificant reference to an observer in an SH-2F warning the pilot of an impending midair collision on GCA final. I realize that your policy is not to use names in articles. However, when a person's act or judgment prevents a mishap, the least that can be done is to recognize that person in print. This is especially significant when recognized by APPROACH, a magazine dedicated to upholding all positive acts of safety awareness. Hopefully, the name of the observer in the SH-2F can be ferreted out and printed, at least as an editor's note to this letter.

LCDR Robert Parkinson, USN
Royal Navy Flight Safety Center

• It is the policy of APPROACH to commend by name whenever possible. We refer you to the numerous Bravo Zulus, Attaboys, and other articles where names are used. In this instance, however, the material for the Air Break arrived by Anymouse, unsigned, with no postal mark. The only clue in the Anymouse writeup of where it took place was a reference to the East Coast.

Metric Musings

FPO, San Francisco – The afterword to the "metric anymouse" story ("If You Can't Beat 'em . . .") in the AUG '76 APPROACH stated that the transition to the metric system is going to pose some problems. As the story itself illustrates (rather subtly), these problems will lie on at least two levels: the first being just plain numerical conversion of units (pints to litres, etc.); the second and somewhat more complex one being the conceptual differences between the two systems.

The difficulty with numerical conversion is brought to light when the article states that our intrepid aviator reset his altimeter to 3012 millibars as he passed 5460 meters. However, the metric equivalent of a standard day is 1013.2 millibars or 760mm Hg. Setting 3012 mb in the altimeter (if it could be done) would result in the aircraft's actual altitude being a bit lower than indicated. The second type of problem surfaces just before takeoff as the oil pressure is checked and found to be in the normal Kg/cm^2 range. Pressures in general are measured in force per unit area, and the metric unit of force is the Newton, not the kilogram. The kilogram is a unit of mass, and although the differentiation in the American system between a pound (mass) and a pound (force) is often nonexistent, when one converts these into their metric counterparts, it must be understood which is which to guarantee use of the correct conversion factor in order to arrive at an answer that is dimensionally correct. Problems such as these will eventually disappear as more material is printed using both sets of units and as people become more familiar with the metric system.

I would be remiss if I closed without commenting that APPROACH is without a doubt one of the most avidly read professional publications at VP-48, and most personnel feel that it is worth its mass in gold.

LTJG Robert Krahe
VP-48

• The author readily admits that his knowledge of physics is limited to the viscosity of fluids passing through constrictive openings in bottles found in millibars. Nevertheless, he will fall back on poetic license to justify the error, with the understanding that future articles on the subject will be more gram-matical. Furthermore, APPROACH will do its share to promote use of metrics by exercising positive litership in this area. ◄

Vol. 22 No. 4

NAVAIR 00-75-510

approach

Pg. 1

Pg. 16

Pg. 22

CONTENTS

1 The *Ventile* Antiexposure Suit: It's Great!
By LCDR Gary Smith and LT Bob Brich
6 The Night the World Died
8 Blacked Out at 390
10 What's Your Approach Plate IQ?
By LT Bob Harler
14 Is Safety Really Paramount?
By LCDR Frank Stauts
16 Breakaway After Tanking
18 "Stand by for High Winds and Heavy Seas!"
22 Safety: The Bam Buti Tribal Way
By LCDR J. F. Smith
24 Cockpit UNs
28 Malfunctions by the Batch

DEPARTMENTS

13 Bravo Zulu
26 Anymouse
29 Our Readers Respond
30 Letters

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COVER/Safety Center artist Blake Rader portrays the UH-2C. This version of the versatile and durable H-2 series helicopter was designed primarily for SAR and utility work. Later models of the H-2 have been used primarily in the LAMPS program.

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Below the MDA*

By LT M. D. Fellows
VT-31 ASO

* Minimum Descent Altitude

BOTH the student and the instructor intensely watched their S-2 airspeed indicators for further sign of a problem. Just a minute before, both of their airspeed gages were bouncing around erratically. The pitot heat had been on and operating throughout the flight, so icing seemed improbable. The needles settled down, and everything seemed to be normal again.

Accordingly, they commenced a practice instrument approach. Everything ran smoothly, so after a touch-and-go landing, the instructor requested radar vectors for another approach. Over the initial approach fix, the aircraft flew into rain showers. Passing the final approach fix and still in the clouds, the student began a descent to MDA.

While descending, both airspeed indicators began to fluctuate again. At 900 feet MSL on both barometric altimeters, the student noted his radar altimeter was reading 400 feet AGL. This meant the aircraft was about 250 feet below MDA.

The pucker factor took a huge jump when the aircraft broke out below the clouds and both pilots saw a large grain elevator directly in front of them. With no more than a second or two to react, the instructor took evasive action and took the aircraft around the elevator and back into the goo. A modified missed approach is what it really was.

Once again back in IMC, the pilots confirmed a malfunctioning pitot static system. With the PAR out at Homebase, the unpleasant possibility of having to shoot a nonprecision, actual approach back at Homeplate loomed large. Fortunately, by the time they reached Homeplate, the weather permitted a VFR approach and landing.

An inspection revealed that the faulty pitot static system was caused by an insect nest about 5 inches inside the port tube. This incident should serve as a warning to all pilots that:

- Unusual fluctuations in flight instruments should not be discounted even if they seem to remedy themselves. The "jumps" are usually indicative of problems.
- Cross-check instruments such as radar altimeters whenever there may be doubt about the pressure instruments. Don't let years of incident-free flying permit you to relax your scan.
- Certain aircraft design features may make them more susceptible than others to all manner of crawling/flying insects. The pitot static tubes should always be thoroughly inspected before flight and covered when the aircraft is on the line.
- Should blockage occur in aircraft static lines, many systems may be returned to near normal operation by breaking the glass in the face of the gage (pressurized cockpit excluded).

"I FLEW FOR 10 YEARS AND HAD ONLY ONE ACCIDENT!"